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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,770	06/25/2001	Howard E. Purdum	204026US68PC	7927

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

KIM, SUN U

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 01/16/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

mk-8

Office Action Summary	Application No.	Applicant(s)	
	09/805,770	PURDUM, HOWARD E.	
	Examiner	Art Unit	
	John Kim	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 26-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other:

1. Applicant's election with traverse of Group I (claims 1-25) in Paper No. 7 is acknowledged. The traversal is on the ground(s) that no adequate reasons and/or examples have been provided to support a conclusion of patentable distinctness between any of Groups I-IV. This is not found persuasive because Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features as listed in paragraph 2 of Paper No. 6.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 26-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 7.

3. Examiner requests applicants to submit prior art references referred on page 17, 19 and 20 of the specification in order to give those references complete consideration.

4. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

5. The disclosure is objected to because of the following informalities: There is no brief description of drawings.

Appropriate correction is required.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Ultrasonic energy sources (40). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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7. Claim 1 is objected to because of the following informalities: Claim 1 ends with a period on line 3 in the middle of the claim. Appropriate correction is required.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 6-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 is indefinite for failing to particularly point out what structural elements that the container comprises. Recitation of "said step of removing" in claim 7 lacks a positive antecedent basis.

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 5, 7, 14-15, 17-18 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,435,155 (hereinafter referred to as Paradis). Paradis teaches a

freeze concentration method comprising the step of cooling material including water to a temperature at or below the melting point e.g. -1.5 degree Celsius in a tube and sheet heat exchanger, applying ultrasonic energy to the cooled material to form solid phase e.g. crystals with a ultrasonic generator, collecting solid phase e.g. crystals with solid-liquid separation method including conveyor belts, gravity draining, centrifugal drive (see figures 1-6b, 8; col. 21, line 62 – col. 23, line 1; col. 25, line 55 – col. 26, line 41).

13. Claims 1, 10, 11-15, 17-18 and 24-25 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,966,966 (hereinafter referred to as Botsaris et al). Botsaris et al teach a freeze concentration method comprising the step of cooling material including effluent from a paper bleaching process to a temperature at or below the melting point in a tube and sheet nucleator heat exchanger, applying ultrasonic energy to the cooled material to form solid phase e.g. crystals with a ultrasonic generator and collecting solid phase e.g. crystals with a separator and sensing ice crystals with an ice crystal size detector inherently detecting resistivity, viscosity or optical properties of ice crystals (see figures 1-2; col. 2, line 45 – col. 5, line 67)

14. Claims 8-9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradis as applied to claim 1 and 14 above, and further in view of U.S. Patent No. 4,156,645 (hereinafter referred to as Bray). Paradis teaches that freeze concentration method includes water desalination (see col. 21, line 62 – col. 22, line 12). Claims 8-9 and 23 essentially differ from the method and apparatus of Paradis in reciting the step of removing salts from the material across a dialysis membrane. Bray teaches that sea water is converted to fresh water by a loose semi-permeable membrane (see abstract). It would have been obvious to a person of ordinary skill in

the art to include the step of removing salts from the material through a dialysis membrane to improve the purity of water with removal of salts.

15. Claims 1-4, 7, 14-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/20420 in view of Paradis. WO 92/20420 teaches method comprising the step of cooling material to a temperature at or below the melting point by flowing the material between two concentric tube ultrasonic resonators wherein coolant is pumped through the inner tube and the outer tube is cooled by appropriate means such that inner tube surface and outer tube surface are inherent sonified cooling plates, applying ultrasonic energy to the cooled material to form solid phase e.g. crystals with a ultrasonic resonator wherein source of ultrasound may be directly or indirectly connected through the walls of a container holding liquid (see figures 1b, 2; abstract; pages 11-16, 18-19; particularly, page 18, line 14 – page 19, line 3). Claims 1-4, 7, 14-19 and 22 essentially differ from the method and apparatus of WO 92/20420 in reciting the step of collecting solid phase with a centrifuge. Paradis teaches the freeze concentration method comprising the step of collecting solid phase e.g. crystals with solid-liquid separation method including conveyor belts, gravity draining, centrifugal drive (see figures 1-6b, 8; col. 25, line 55 – col. 26, line 41). It would have been obvious to a person of ordinary skill in the art to include the step of collecting crystals via a centrifuge in the method and apparatus of WO 92/20420 to separate out the crystals from liquids and obtain pure product.

16. Claims 6 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/20420 in view of Paradis as applied to claim 1 and 14 above, and further in view of U.S. Patent No. 4,479,989 (hereinafter referred to as Mahal). Claims 6 and 20-21 essentially differ from the method and apparatus of WO 92/20420 in view of Paradis in reciting a thin walled

flexible container comprising a filter element for holding the material. Mahal teaches a flexible film container having high degree of gas transmission e.g. filtering element and having excellent low temperature properties as well as capability for radiation sterilization (see col. 2, lines 4-16, 55-57; col. 11, line 64 – col. 12, line 4). It would have been obvious to a person of ordinary skill in the art to hold material in a thin-walled flexible container having low temperature properties as well as capability for radiation sterilization in the method of WO 92/20420 in view of Paradis for applying the steps of cooling and application of ultrasonic energy through the wall of the container holding the material.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,397,661 and 5,021,663 teach viscosity and/or infrared detectors. U.S. Patent No. 5,585,007 and 5,520,885 teach blood plasma separation. U.S. Patent No. 5,139,496 teaches ultrasonic freeze ablation catheters. U.S. Patent No. 6,436,454 teaches manufacture of frozen product. U.S. Patent No. 4,574,876 teaches flexible thin-walled container for heating and cooling liquids.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kim whose telephone number is (703) 308-2350. The examiner can normally be reached on weekdays from 7:00 AM - 3:00 PM.

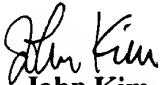
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (703) 308-0457. The fax phone number for official response after final action is (703) 872-9311, and the fax phone number for all other official faxes is (703) 872-9310.

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When sending a draft amendment by fax, please mark the paper as "DRAFT"; otherwise, mark the paper "OFFICIAL". This will expedite the processing of the paper.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.


John Kim
Primary Examiner
Art Unit 1723

J. Kim
January 9, 2003